# RESULTS OF A 24-HOUR NOISE LEVEL SURVEY CARRIED OUT ON THE FIRST FLOOR ROOF AT THE REAR OF THE COMMERCIAL PREMISES LOCATED AT 21-20A BROWNLOW MEWS, LONDON WC1 AND A REPORT ON THE NOISE IMPACT OF THE PROPOSED NEW EXTERNAL PLANT

Test Engineer : P G H Roberts

Report Author : M G Roberts

Authorised for
Release by : I J Marchant

| | | |
|---|---|---|
| Client | : | Coolair Equipment Ltd |
| Project | : | 21-28 Brownlow Mews, London WC1 |
| Emtec Ref. | : | QF9847/PF6541/RP1A |
| Issue Date | : | 7th August 2019 |

**Emtec Products Ltd**
T: +44(0)20 8848 3031
E: sales@emtecproducts.co.uk
W: emtecproducts.co.uk

Unit L, Turnpike Way
High Wycombe
Buckinghamshire
HP12 3TF

Registered in England No. 3164658 VAT Reg. No. GB675017042

# RESULTS OF A 24-HOUR NOISE LEVEL SURVEY CARRIED OUT ON THE FIRST FLOOR ROOF AT THE REAR OF THE COMMERCIAL PREMISES LOCATED AT 21-20A BROWNLOW MEWS, LONDON WC1 AND A REPORT ON THE NOISE IMPACT OF THE PROPOSED NEW EXTERNAL PLANT

## 1.0. INTRODUCTION

This report details the results of 24-hour noise survey, carried out on the first floor flat roof at the rear of the office premises located at 21-20A Brownlow Mews, London WC1.

The objectives of the survey were as follows:

- To assess the proposal to install new air cooled condensers on the first floor roof of the building.
- To identify the nearest noise sensitive residential and commercial properties that might be affected by noise from the new plant.
- To establish the existing background noise level outside the nearest affected properties.
- To recommend noise limits and any necessary mitigating measures to ensure that the operation of the new plant does not disturb the occupants of the nearest affected properties and meets the planning directives of the local authority with regard to noise.

This report has been divided into the following sections for ease of analysis:



## 2.0. SITE DESCRIPTION

The building located at 21-20A Brownlow Mews is a converted, two storey, office building of brick construction with metal windows. The building fronts onto Brownlow Mews and the front façade of the building is shown in the attached Photo A.

At the rear of the premises there are a number of residential properties, which are the rear facades of houses in Doughty Street, with a light well/garden space between the rear of the premises and the rear facades of the houses. At the north end of the premises is a small flat roof area, at first floor level, and the rear facades of houses in Guildford Street overlook this roof area. The flat roof area and the location of the adjacent houses are shown on the attached aerial Photo B and on the views shown on the attached Photos C and D.

## 3.0. TEST INSTRUMENTATION

All measurement equipment used during the survey complied with the requirements of BS4142:2014 "Method for Rating Industrial Noise Affecting Mixed Residential and Industrial Areas". Details of the equipment are as follows:

| | |
|---|---|
| Integrating Sound Level Meter: | Rion type NL-52 class 1 Sound Level Meter fitted with a Rion type UC-59 ½ inch condenser microphone.<br>Serial No.: 01232569 |
| Statistical Analysis Modules: | Built in module capable of computing the percentile levels L1, L10, L50, L90 and L99 and also the Leq level. |
| Acoustic Calibrator: | Bruel & Kjaer type 4231 electronic calibrator.<br>Serial No.: 1934160 |

Calibration was performed before and after the survey and found to be, in all cases, +/- 0.1 dB from the reference source.

### 3.1. Existing Noise Climate

Some road traffic noise could just be heard from vehicles travelling on Doughty Street and Guildford Street but the roof area is shielded from direct view of these roads and whilst noise levels measured may include contributions from road vehicles this was not considered the main source of background noise.

Commercial jet aircraft were observed at medium and high altitude during the manned periods at the start and the end of the survey, so it is possible that the noise levels measured could include contributions from medium altitude jet aircraft.

There are no overland railways nearby, so the noise levels measured will not include contributions from rail noise.

Construction works were being carried out on the house in Doughty Street directly behind the first floor flat roof area, as shown in Photo C, so daytime noise levels measured may not be representative of normal daytime background noise levels.

## 4.0. TEST PROCEDURE

The survey was conducted during a continuous 24-hour period from 10.22am on Wednesday the 10th July to 10.22am on Thursday the 11th July 2019.

Data was continuously acquired throughout the measurement period with the individual averaging time for statistical noise data set to 15 minutes. The following 'A' weighted statistical measurements were recorded concurrently: -

$LA_1$ - The Sound Pressure Level exceeded for 1% of the measurement period.

$LA_{10}$ - The Sound Pressure Level exceeded for 10% of the measurement period.

$LA_{50}$ - The Sound Pressure Level exceeded for 50% of the measurement period.

$LA_{90}$ - The Sound Pressure Level exceeded for 90% of the measurement period. $LA_{90}$ is considered to represent the "background noise level" during the measurement period and is used for the assessment of noise to determine the likelihood of complaints (See BS 4142:2014).

$LA_{99}$ - The Sound Pressure Level exceeded for 99% of the measurement period.

$LA_{eq}$ - The continuous steady state Sound Pressure Level that has the same acoustic energy as the real fluctuating level.

4.1. Measurement Positions

The microphone was mounted on a tripod and positioned on the edge of the first floor flat roof area at the rear of the premises located at 21-20A Brownlow Mews. The microphone was oriented vertically and was approximately 1.5m above the level of the first floor roof. The location of the microphone can be seen on the attached Photos B, C and D.

The microphone was connected by a low impedance cable to the associated instrumentation which was contained within a weatherproof housing.

4.2. Weather Conditions

The weather conditions prevailing during the measurement period were in line with those recommended in BS 4142:2014: -

| | | | |
|---|---|---|---|
| Weather daytime: - | Clear | Weather night time: - | Clear |
| Wind daytime: - | Calm | Wind night time: - | Calm |

The microphone was protected throughout the survey by an acoustically transparent wind balloon.

5.0. RESULTS AND EVALUATION OF NOISE CRITERIA

The raw test data, gathered during the noise survey, is given in Appendix 'A 'of this report.

The 'A' Weighted Leq levels measured over each 15 minute interval throughout the 24-hour period, denoted by $LA_{eq}$, (15 mins), are displayed as a bar graph on the attached Sketch No QF/9847/T1 at the back of this report.

The 'A' Weighted percentile levels measured over each 15 minute interval throughout the 24-hour period, denoted by $LA_{10}$ (15 mins), $LA_{50}$ (15 mins) and $LA_{90}$ (15 mins) are displayed as line graphs on the attached Sketch No QF/9847/T2 at the back of this report.

5.1. Summary of Results

The table QF/9847/D1 below summarises the noise levels taken over the 24-hour period in terms of the maximum and minimum Sound Pressure Levels recorded.

Table QF/9847/D1 – Summary of Maximum and Minimum Noise Levels

| | **$LA_{eq}$** | **$LA_{1}$** | **$LA_{10}$** | **$LA_{50}$** | **$LA_{90}$** | **$LA_{99}$** |
|---|---|---|---|---|---|---|
| **Minimum** | 39dBA | 44dBA | 40dBA | 37dBA | 36dBA | 36dBA |
| **Maximum** | 64dBA | 77dBA | 67dBA | 64dBA | 59dBA | 55dBA |

The following table QF/9847/D2 states the minimum $LA_{90}$ noise levels recorded during the time periods of 7.00am to 23.00pm (Daytime) and between 23.00pm and 7.00am (Night time)

Table QF/9847/D2 – Minimum $LA_{90}$ Noise Levels – Daytime and Night time

| Time of Day | **$LA_{90}$** |
|---|---|
| **Minimum Daytime ( 7am to 11pm )** | 40dBA |
| **Minimum Night Time ( 11pm to 7am )** | 36dBA |

5.2. Summary of the Local Authority's planning requirements regarding noise for noise sensitive properties

The local planning authority is the London Borough of Camden.

The Camden Local Plan sets out the Council's planning policies and replaces the Core Strategy and Development Policy planning documents (adopted in 2010). It ensures that Camden continues to have robust, effective and up-to-date planning policies that respond to changing circumstances and the borough's unique characteristics and contribute to delivering the Camden Plan and other local priorities.

The Local Plan will cover the period from 2016-2031. Policy A4 of The Local Plan is entitled Noise and Vibration and states:

*The Council will seek to ensure that noise and vibration is controlled and managed. Development should have regard to Camden's Noise and Vibration thresholds (Appendix 3). We will not grant planning permission for a) a development likely to generate unacceptable noise and vibration impacts or b) a development sensitive to noise in locations which experience high levels of noise, unless appropriate attenuation measures can be provided and will not harm the continued operation of existing uses. We will only grant permission for noise generating development, including any plant and machinery, if it can be operated without causing harm to amenity. We will also seek to minimise the impact on local amenity from deliveries and from the demolition and construction phases of development.*

The parts of Appendix 3 that we have identified as relevant to this application are as follows:

*Appendix 3: Noise thresholds*

*The significance of noise impact varies dependent on the different noise sources, receptors and times of operation presented for consideration within a planning application. Therefore, Camden's thresholds for noise and vibration evaluate noise impact in terms of various 'effect levels' described in the National Planning Policy Framework and Planning Practice Guidance:*

- *NOEL – No Observed Effect Level*
- *LOAEL – Lowest Observed Adverse Effect Level*
- *SOAEL – Significant Observed Adverse Effect Level*

*Three basic design criteria have been set for proposed developments, these being aimed at guiding applicants as to the degree of detailed consideration needed to be given to noise in any planning application. The design criteria outlined below are defined in the corresponding noise tables. The values will vary depending on the context, type of noise and sensitivity of the receptor:*

- *Green – where noise is considered to be at an acceptable level.*
- *Amber – where noise is observed to have an adverse effect level, but which may be considered acceptable when assessed in the context of other merits of the development.*
- *Red – where noise is observed to have a significant adverse effect.*

***Table C: Noise levels applicable to proposed industrial and commercial developments (including plant and machinery)***

| *Existing Noise sensitive receptor* | *Assessment Location* | *Design Period* | *LOAEL (Green)* | *LOAEL to SOAEL (Amber)* | *SOAL (Red)* |
|---|---|---|---|---|---|
| *Dwellings*** | *Garden used for main amenity (free field) and Outside living or dining or bedroom window (façade)* | *Day* | *'Rating level' 10dB* below background* | *'Rating level' between 9dB below and 5dB above background* | *'Rating level' greater than 5dB above background* |
| *Dwellings*** | *Outside bedroom window (façade)* | *Night* | *'Rating level' 10dB* below background and no events exceeding 57dB $L_{Amax}$* | *'Rating level' between 9dB below and 5dB above background or noise events between 57dB and 88dB $L_{Amax}$* | *'Rating level' greater than 5dB above background and/or events exceeding 88dB $L_{Amax}$* |

**10dB should be increased to 15dB if the noise contains audible tonal elements (day and night). However, if it can be demonstrated that there is no significant difference in the character of the residual background noise and the specific noise from the proposed development then this reduction may not be required. In addition, a frequency analysis (to include, the use of Noise Rating (NR) curves or other criteria curves) for the assessment of tonal or low frequency noise may be required.*

***levels given are for dwellings, however, levels are use specific and different levels will apply dependent on the use of the premises.*

*The periods in Table C correspond to 0700 hours to 2300 hours for the day and 2300 hours to 0700 hours for the night. The Council will take into account the likely times of occupation for types of development and will be amended according to the times of operation of the establishment under consideration.*

*There are certain smaller pieces of equipment on commercial premises, such as extract ventilation, air conditioning units and condensers, where achievement of the rating levels (ordinarily determined by a BS:4142 assessment) may not afford the necessary protection. In these cases, the Council will generally also require an NR curve specification of NR35 or below, dependant on the room (based upon measured or predicted Leq (5mins) noise levels in octave bands, 1 metre from the façade of affected premises, where the noise sensitive premise is located in a quiet background area.*

5.3. Determination of noise sensitive property design criteria

We believe that the new plant, which will consist of a number of air cooled condensing units, will not emit noise that will have a distinguishable discrete tone or emit noise that has distinctive impulses. The fans and compressors within the condenser units will be inverter controlled and will slowly ramp up to their operating speed. To comply with a green rating from the table above the new units should therefore have a Sound Pressure Level 10dB below the lowest $LA_{90}$ background noise level at 1 metre from the nearest noise sensitive window.

The lowest background noise level measured during the 24 hour survey was 36dBA.

The daytime (7am to 11pm) minimum $LA_{90}$ noise level measured during the survey was 40dBA.

We believe that the proposed mechanical plant will probably only run during the daytime but applying a rating level that is 10dB below the lowest daytime and night time $LA_{90}$ noise levels gives the following limiting noise rating $LA_{eq}$ levels as given in table QF/9847/D3 below:

Table QF/9847/D3 – Proposed Design Rating Levels

| *Existing Noise sensitive receptor* | *Design Period* | *Lowest measured background level* | ***Proposed rating level*** | *Proposed Local Authority criteria* |
|---|---|---|---|---|
| *Dwellings* | *Day* | *40dBA* | ***30dBA*** | *Green* |
| *Dwellings* | *Night* | *36dBA* | ***26dBA*** | *Green* |

5.4. Determination of commercial design criteria

The use of the commercial premises adjacent to 21-20A Brownlow Mews consist of offices and workshops. It is therefore proposed that the recommendations given in BS8233:2014 and that Table 2 of that standard be considered.

| | Good | Reasonable |
|---|---|---|
| Open Plan offices: $L_{Aeq,T}$ | 45dBA | 50dBA |

We propose that the lower of these rating levels is adopted, i.e. 45dBA.

Assuming a 10dB noise reduction due to a partially open window the rating level at 1 metre external to the nearest affected office windows should be 45dBA + 10dB = 55dBA.

5.5. Summary of external noise criteria

Based upon the lowest $LA_{90}$ background noise levels measured during the survey and the Local Council's requirements outlined above we summarise the design rating levels to be adopted for this project in table QF/9847/D4: -

Table QF/9847/D4 – recommended design rating levels $L_{Ar,T}$

| **Type of premises** | **$L_{Ar,T}$ (11pm to 7am)** | **$L_{Ar,T}$ (7am to 11pm)** |
|---|---|---|
| Noise Sensitive | 26dBA | 30dBA |
| Commercial | - | 55dBA |

6.0 DISCUSSION OF RESULTS

Four new air cooled condensers are being installed onto the first floor flat roof of the building and the proposed location of the condensers can be seen on the attached Stiff + Trevillion plant enclosure sketch No SK-01.

The condensers proposed are four Mitsubishi PUMY-P140YKM4 units. The sound pressure level of the condenser is listed in the tables QF/9847/D5 and -/D6 together with a correction for four units and the natural attenuation to a position one metre from the nearest neighbouring residential windows in Guildford Street and Doughty Street.

Table QF/9847/D5 – Noise Level of Mitsubishi Condensers, operating at full duty, and natural and required attenuation to 1 metre from the nearest window in Guildford Street

| Equipment/Attenuation | Sound Pressure Level (dB ref 2 x $10^{-5}$ $N/m^2$) | | | | | | | | dBA |
|---|---|---|---|---|---|---|---|---|---|
| | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | |
| Mitsubishi PUMY-P140YKM4 at 1m free field - heating | 59 | 60 | 51 | 52 | 47 | 42 | 37 | 31 | 53 |
| 4 Units | +6 | +6 | +6 | +6 | +6 | +6 | +6 | +6 | |
| Distance loss - $10\log A_9 A_1$ | -15 | -15 | -15 | -15 | -15 | 15 | -15 | -15 | |
| Reverberation of Space | +4 | +4 | +4 | +4 | +4 | +4 | +4 | +4 | |
| Directivity ( 90 degrees ) | -1 | -2 | -3 | -6 | -10 | -10 | -10 | -10 | |
| SPL at 1m from nearest window | 53 | 53 | 43 | 41 | 32 | 27 | 22 | 16 | 42 |
| Attenuation of Enclosure – Emtec RAAC/33/600S and RAAC/38/900 | -4 | -8 | -15 | -23 | -32 | -33 | -29 | -18 | |
| Overall SPL at 1 metre from nearest neighbour's window | 49 | 45 | 28 | 18 | - | - | - | - | 30 |

Table QF/9847/D6 – Noise Levels of Mitsubishi Condensers, operating at full duty, and natural and required attenuation to 1 metre from the nearest window in Doughty Street

| Equipment/Attenuation | Sound Pressure Level (dB ref 2 x $10^{-5}$ N/$m^2$) | | | | | | | | dBA |
|---|---|---|---|---|---|---|---|---|---|
| | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | |
| Mitsubishi PUMY-P140YKM4 at 1m free field | 59 | 60 | 51 | 52 | 47 | 42 | 37 | 31 | 53 |
| 4 Units | +6 | +6 | +6 | +6 | +6 | +6 | +6 | +6 | |
| Distance loss - 10log$A_{15}A_1$ | -20 | -20 | -20 | -20 | -20 | -20 | -20 | -20 | |
| Reverberation of Space | +4 | +4 | +4 | +4 | +4 | +4 | +4 | +4 | |
| SPL at 1m from nearest window | 49 | 50 | 41 | 42 | 37 | 32 | 27 | 21 | 43 |
| Attenuation of Enclosure – Emtec RAAC/33/600S and RAAC/38/900 | -4 | -8 | -15 | -28 | -34 | -34 | -31 | -28 | |
| Overall SPL at 1 metre from nearest neighbour's window | 45 | 42 | 26 | 14 | 3 | - | - | - | 27 |

Based upon the calculations in tables QF/9847/D5 and -/D6 above the noise levels at 1 metre from the nearest residential windows will be below the limiting LAeq noise level of 30dBA for daytime and evening running of the condensers ( 7am to 11pm ).

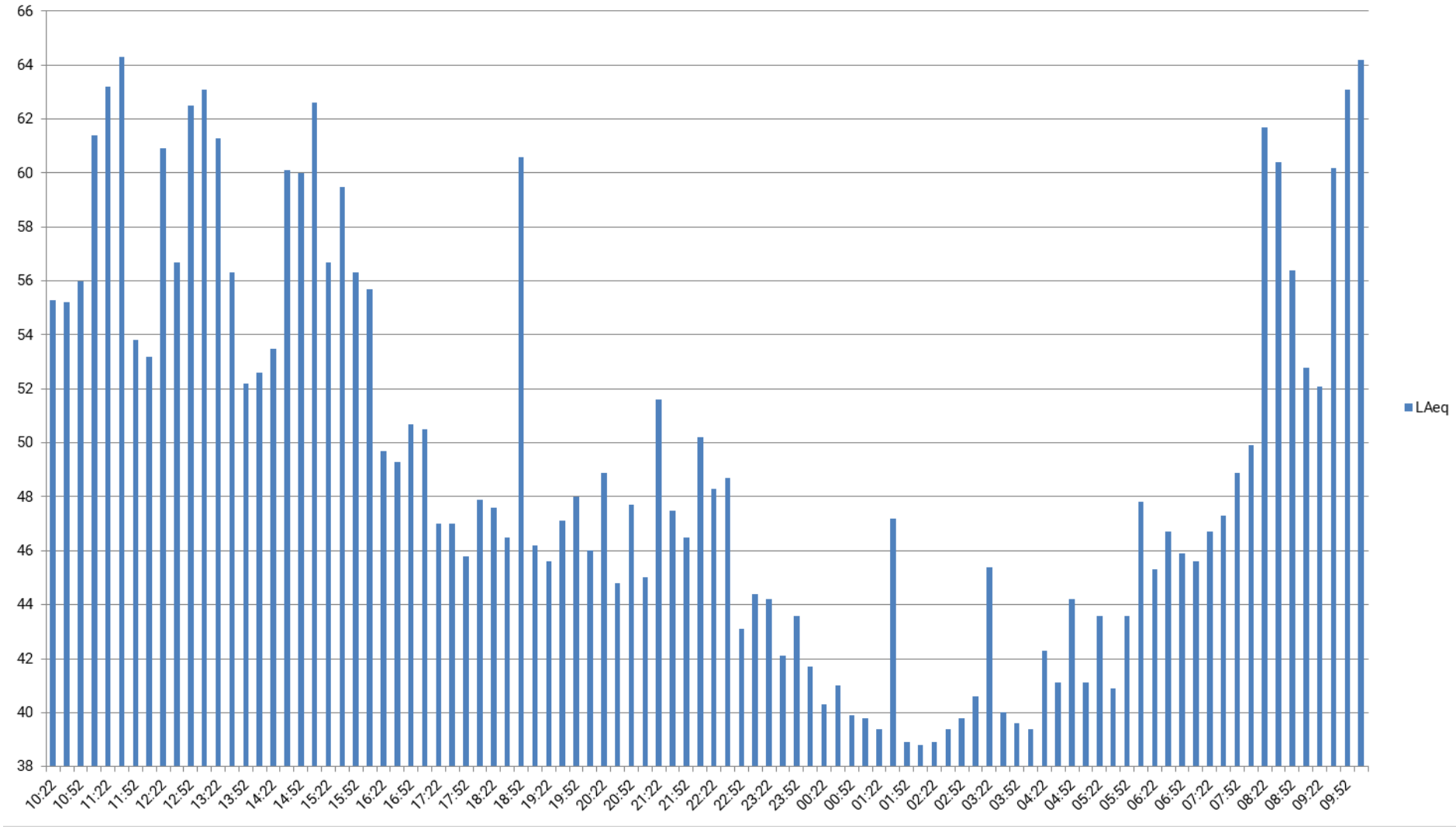
The units could be run at night so long as they are controlled to operate on night setback, which would reduce the unattenuated free field noise level of each unit to 48dBA and the attenuated noise levels to 25dBA and 22dBA respectively. These noise levels are significantly below the 24 hour limiting LAeq noise level of 26dBA.

We would recommend that the condensers be mounted onto neoprene-in-shear, anti-vibration mounts having a minimum static deflection of 6mm and a flexible connection is fitted between the inlet silencer and the rear of the condensers so as to eliminate short circuiting of discharge air from the condensers within the acoustic enclosure.

We attach herewith a sketch QF/9847/GA3 which gives details of the acoustic enclosure that will be required around the four Mitsubishi condensers in order to provide the attenuation listed in the tables above.

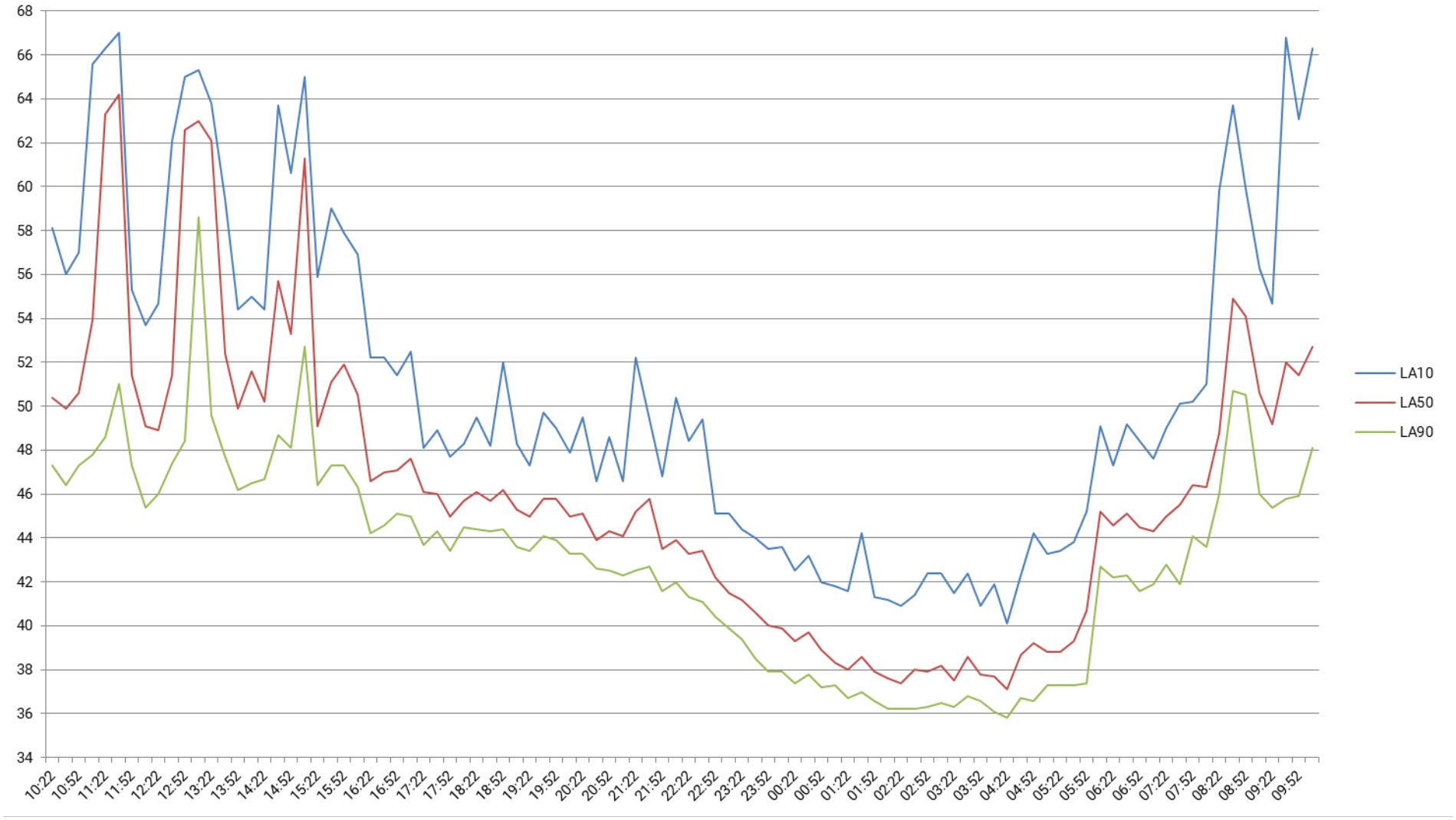
If the mitigation measures outlined above are included in the installation of the proposed new condensers then the noise level of the condensers should be acceptable under the planning guidelines set down by the local authority with regard to noise.

**Emtec Products Ltd**
**7th August 2019**




| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *TITLE:* *LAeq Levels* | *ISSUE DATE:* *12-07-2019* | | | | *DRAWN BY:* *MGR* | *A* | *B* | *C* | *D* | *E* | *F* | *G* | *H* |
| *CLIENT:* *Coolair Equipment Ltd* | *PF No: 6541* | | | | *APPROVED BY:* *MGR* | *REVISION* | | | | | | | |
| *PROJECT:* *21-28 Brownlow Mews, London WC1* | *Q* | *A* | *M* | *I* | *DESIGN AUTH:* *MGR* | *SKETCH No. QF/9847/T1* | | | | | | | |

EMTEC
Unit L, Turnpike Way, High Wycombe,
Buckinghamshire, HP12 3TF
Telephone: 020 8848 3031
www.emtecproducts.co.uk




| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *TITLE:*<br>*LA10; LA50 & LA90 Levels* | *ISSUE DATE:*<br>*12-07-2019* | | | | *DRAWN BY:*<br>*MGR* | *A* | *B* | *C* | *D* | *E* | *F* | *G* | *H* |
| *CLIENT: Coolair Equipment Ltd* | *PF No: 6541* | | | | *APPROVED BY:*<br>*MGR* | *REVISION* | | | | | | | |
| *PROJECT: 21-28 Brownlow Mews, London WC1* | *Q* | *A* | *M* | *I* | *DESIGN AUTH:*<br>*MGR* | *SKETCH No. QF/9847/T2* | | | | | | | |

EMTEC
Unit L, Turnpike Way, High Wycombe,
Buckinghamshire, HP12 3TF
Telephone: 020 8848 3031
www.emtecproducts.co.uk

# APPENDIX 'A'

Raw Data – Noise Survey

10th to 11th July 2019

**Project:** 21-28 Brownlow Mews, London WC1
**Ref:** QF9847/PF6541/RP1
**Client:** Coolair Equipment Ltd
**Date:** 10th to 11th July 2019
**Serial No:** 1232569

| Address | Start Time | $LA_{eq}$ | LE | Lmax | Lmin | $LA_{1}$ | $LA_{10}$ | $LA_{50}$ | $LA_{90}$ | $LA_{99}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10:22 | 55 | 85 | 79 | 44 | 67 | 58 | 50 | 47 | 47 |
| 2 | 10:37 | 55 | 85 | 77 | 42 | 67 | 56 | 50 | 46 | 46 |
| 3 | 10:52 | 56 | 86 | 79 | 43 | 67 | 57 | 51 | 47 | 46 |
| 4 | 11:07 | 61 | 91 | 74 | 42 | 67 | 66 | 54 | 48 | 47 |
| 5 | 11:22 | 63 | 93 | 73 | 43 | 70 | 66 | 63 | 49 | 47 |
| 6 | 11:37 | 64 | 94 | 73 | 43 | 70 | 67 | 64 | 51 | 48 |
| 7 | 11:52 | 54 | 83 | 72 | 43 | 64 | 55 | 51 | 47 | 46 |
| 8 | 12:07 | 53 | 83 | 74 | 43 | 65 | 54 | 49 | 45 | 45 |
| 9 | 12:22 | 61 | 91 | 83 | 43 | 76 | 55 | 49 | 46 | 45 |
| 10 | 12:37 | 57 | 86 | 70 | 44 | 65 | 62 | 51 | 47 | 47 |
| 11 | 12:52 | 63 | 92 | 69 | 43 | 67 | 65 | 63 | 48 | 47 |
| 12 | 13:07 | 63 | 93 | 75 | 48 | 67 | 65 | 63 | 59 | 55 |
| 13 | 13:22 | 61 | 91 | 72 | 44 | 65 | 64 | 62 | 50 | 48 |
| 14 | 13:37 | 56 | 86 | 72 | 44 | 67 | 59 | 52 | 48 | 47 |
| 15 | 13:52 | 52 | 82 | 73 | 43 | 61 | 54 | 50 | 46 | 46 |
| 16 | 14:07 | 53 | 82 | 69 | 43 | 59 | 55 | 52 | 47 | 46 |
| 17 | 14:22 | 54 | 83 | 80 | 43 | 60 | 54 | 50 | 47 | 46 |
| 18 | 14:37 | 60 | 90 | 74 | 43 | 68 | 64 | 56 | 49 | 48 |
| 19 | 14:52 | 60 | 90 | 91 | 44 | 66 | 61 | 53 | 48 | 47 |
| 20 | 15:07 | 63 | 92 | 83 | 44 | 70 | 65 | 61 | 53 | 48 |
| 21 | 15:22 | 57 | 86 | 88 | 44 | 66 | 56 | 49 | 46 | 46 |
| 22 | 15:37 | 60 | 89 | 92 | 43 | 66 | 59 | 51 | 47 | 46 |
| 23 | 15:52 | 56 | 86 | 80 | 44 | 68 | 58 | 52 | 47 | 47 |
| 24 | 16:07 | 56 | 85 | 74 | 44 | 68 | 57 | 51 | 46 | 46 |
| 25 | 16:22 | 50 | 79 | 67 | 42 | 60 | 52 | 47 | 44 | 44 |
| 26 | 16:37 | 49 | 79 | 71 | 43 | 57 | 52 | 47 | 45 | 44 |
| 27 | 16:52 | 51 | 80 | 74 | 43 | 62 | 51 | 47 | 45 | 45 |
| 28 | 17:07 | 51 | 80 | 72 | 43 | 60 | 53 | 48 | 45 | 44 |
| 29 | 17:22 | 47 | 77 | 64 | 42 | 53 | 48 | 46 | 44 | 43 |
| 30 | 17:37 | 47 | 77 | 63 | 42 | 53 | 49 | 46 | 44 | 44 |
| 31 | 17:52 | 46 | 75 | 62 | 41 | 52 | 48 | 45 | 43 | 43 |
| 32 | 18:07 | 48 | 78 | 69 | 43 | 56 | 48 | 46 | 45 | 44 |
| 33 | 18:22 | 48 | 77 | 65 | 43 | 55 | 50 | 46 | 44 | 44 |
| 34 | 18:37 | 47 | 76 | 62 | 43 | 53 | 48 | 46 | 44 | 44 |
| 35 | 18:52 | 61 | 90 | 83 | 42 | 73 | 52 | 46 | 44 | 44 |
| 36 | 19:07 | 46 | 76 | 60 | 41 | 53 | 48 | 45 | 44 | 43 |
| 37 | 19:22 | 46 | 75 | 61 | 42 | 50 | 47 | 45 | 43 | 43 |
| 38 | 19:37 | 47 | 77 | 63 | 42 | 53 | 50 | 46 | 44 | 44 |
| 39 | 19:52 | 48 | 78 | 65 | 42 | 58 | 49 | 46 | 44 | 44 |
| 40 | 20:07 | 46 | 76 | 58 | 42 | 52 | 48 | 45 | 43 | 43 |
| 41 | 20:22 | 49 | 79 | 75 | 42 | 55 | 50 | 45 | 43 | 43 |
| 42 | 20:37 | 45 | 74 | 60 | 41 | 50 | 47 | 44 | 43 | 42 |
| 43 | 20:52 | 48 | 77 | 67 | 41 | 59 | 49 | 44 | 43 | 42 |
| 44 | 21:07 | 45 | 75 | 65 | 41 | 51 | 47 | 44 | 42 | 42 |
| 45 | 21:22 | 52 | 81 | 70 | 41 | 65 | 52 | 45 | 43 | 42 |
| 46 | 21:37 | 48 | 77 | 66 | 41 | 57 | 49 | 46 | 43 | 42 |
| 47 | 21:52 | 47 | 76 | 68 | 40 | 58 | 47 | 44 | 42 | 41 |
| 48 | 22:07 | 50 | 80 | 68 | 40 | 63 | 50 | 44 | 42 | 42 |
| 49 | 22:22 | 48 | 78 | 67 | 40 | 60 | 48 | 43 | 41 | 41 |
| 50 | 22:37 | 49 | 78 | 67 | 39 | 61 | 49 | 43 | 41 | 41 |
| 51 | 22:52 | 43 | 73 | 59 | 39 | 48 | 45 | 42 | 40 | 40 |
| 52 | 23:07 | 44 | 74 | 66 | 39 | 54 | 45 | 42 | 40 | 40 |

| 53 | 23:22 | 44 | 74 | 67 | 37 | 52 | 44 | 41 | 39 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|
| 54 | 23:37 | 42 | 72 | 62 | 37 | 49 | 44 | 41 | 39 | 38 |
| 55 | 23:52 | 44 | 73 | 69 | 37 | 54 | 44 | 40 | 38 | 38 |
| 56 | 00:07 | 42 | 71 | 59 | 36 | 49 | 44 | 40 | 38 | 38 |
| 57 | 00:22 | 40 | 70 | 52 | 36 | 46 | 43 | 39 | 37 | 37 |
| 58 | 00:37 | 41 | 71 | 57 | 36 | 48 | 43 | 40 | 38 | 38 |
| 59 | 00:52 | 40 | 70 | 51 | 36 | 46 | 42 | 39 | 37 | 37 |
| 60 | 01:07 | 40 | 69 | 57 | 36 | 47 | 42 | 38 | 37 | 37 |
| 61 | 01:22 | 39 | 69 | 59 | 35 | 45 | 42 | 38 | 37 | 36 |
| 62 | 01:37 | 47 | 77 | 66 | 35 | 62 | 44 | 39 | 37 | 37 |
| 63 | 01:52 | 39 | 69 | 50 | 35 | 44 | 41 | 38 | 37 | 36 |
| 64 | 02:07 | 39 | 68 | 50 | 35 | 45 | 41 | 38 | 36 | 36 |
| 65 | 02:22 | 39 | 69 | 53 | 35 | 47 | 41 | 37 | 36 | 36 |
| 66 | 02:37 | 39 | 69 | 52 | 35 | 48 | 41 | 38 | 36 | 36 |
| 67 | 02:52 | 40 | 69 | 55 | 35 | 47 | 42 | 38 | 36 | 36 |
| 68 | 03:07 | 41 | 70 | 58 | 35 | 51 | 42 | 38 | 37 | 36 |
| 69 | 03:22 | 45 | 75 | 72 | 35 | 49 | 42 | 38 | 36 | 36 |
| 70 | 03:37 | 40 | 70 | 55 | 35 | 46 | 42 | 39 | 37 | 36 |
| 71 | 03:52 | 40 | 69 | 65 | 35 | 47 | 41 | 38 | 37 | 36 |
| 72 | 04:07 | 39 | 69 | 55 | 34 | 47 | 42 | 38 | 36 | 36 |
| 73 | 04:22 | 42 | 72 | 71 | 35 | 49 | 40 | 37 | 36 | 36 |
| 74 | 04:37 | 41 | 71 | 64 | 35 | 49 | 42 | 39 | 37 | 36 |
| 75 | 04:52 | 44 | 74 | 68 | 35 | 55 | 44 | 39 | 37 | 36 |
| 76 | 05:07 | 41 | 71 | 55 | 36 | 50 | 43 | 39 | 37 | 37 |
| 77 | 05:22 | 44 | 73 | 68 | 36 | 52 | 43 | 39 | 37 | 37 |
| 78 | 05:37 | 41 | 71 | 55 | 36 | 48 | 44 | 39 | 37 | 37 |
| 79 | 05:52 | 44 | 73 | 62 | 36 | 54 | 45 | 41 | 37 | 37 |
| 80 | 06:07 | 48 | 77 | 66 | 40 | 58 | 49 | 45 | 43 | 42 |
| 81 | 06:22 | 45 | 75 | 61 | 39 | 51 | 47 | 45 | 42 | 42 |
| 82 | 06:37 | 47 | 76 | 64 | 39 | 54 | 49 | 45 | 42 | 42 |
| 83 | 06:52 | 46 | 76 | 63 | 39 | 53 | 48 | 45 | 42 | 41 |
| 84 | 07:07 | 46 | 75 | 64 | 39 | 53 | 48 | 44 | 42 | 41 |
| 85 | 07:22 | 47 | 76 | 61 | 40 | 55 | 49 | 45 | 43 | 42 |
| 86 | 07:37 | 47 | 77 | 65 | 39 | 55 | 50 | 46 | 42 | 41 |
| 87 | 07:52 | 49 | 79 | 69 | 41 | 59 | 50 | 46 | 44 | 44 |
| 88 | 08:07 | 50 | 80 | 68 | 40 | 62 | 51 | 46 | 44 | 43 |
| 89 | 08:22 | 62 | 91 | 81 | 42 | 76 | 60 | 49 | 46 | 45 |
| 90 | 08:37 | 60 | 90 | 75 | 45 | 71 | 64 | 55 | 51 | 50 |
| 91 | 08:52 | 56 | 86 | 72 | 47 | 63 | 60 | 54 | 51 | 49 |
| 92 | 09:07 | 53 | 82 | 68 | 41 | 61 | 56 | 51 | 46 | 45 |
| 93 | 09:22 | 52 | 82 | 69 | 42 | 61 | 55 | 49 | 45 | 44 |
| 94 | 09:37 | 60 | 90 | 74 | 42 | 70 | 67 | 52 | 46 | 45 |
| 95 | 09:52 | 63 | 93 | 86 | 43 | 77 | 63 | 51 | 46 | 45 |
| 96 | 10:07 | 64 | 94 | 83 | 44 | 75 | 66 | 53 | 48 | 47 |

APPENDIX ‘B’

Photos and Sketch

21-20A Brownlow Mews


Photo A – Front Entrance of 21-20A Brownlow Mews

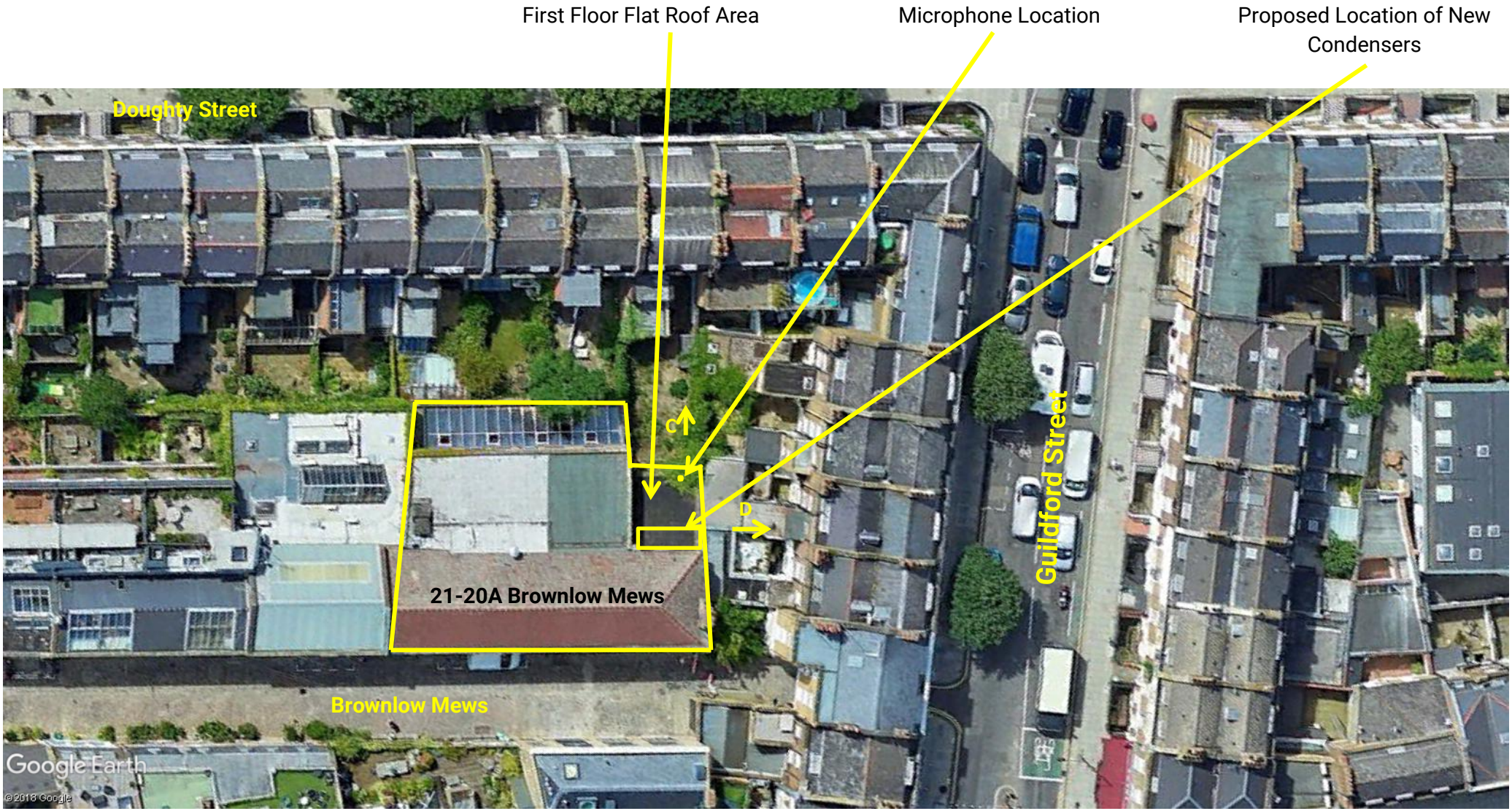
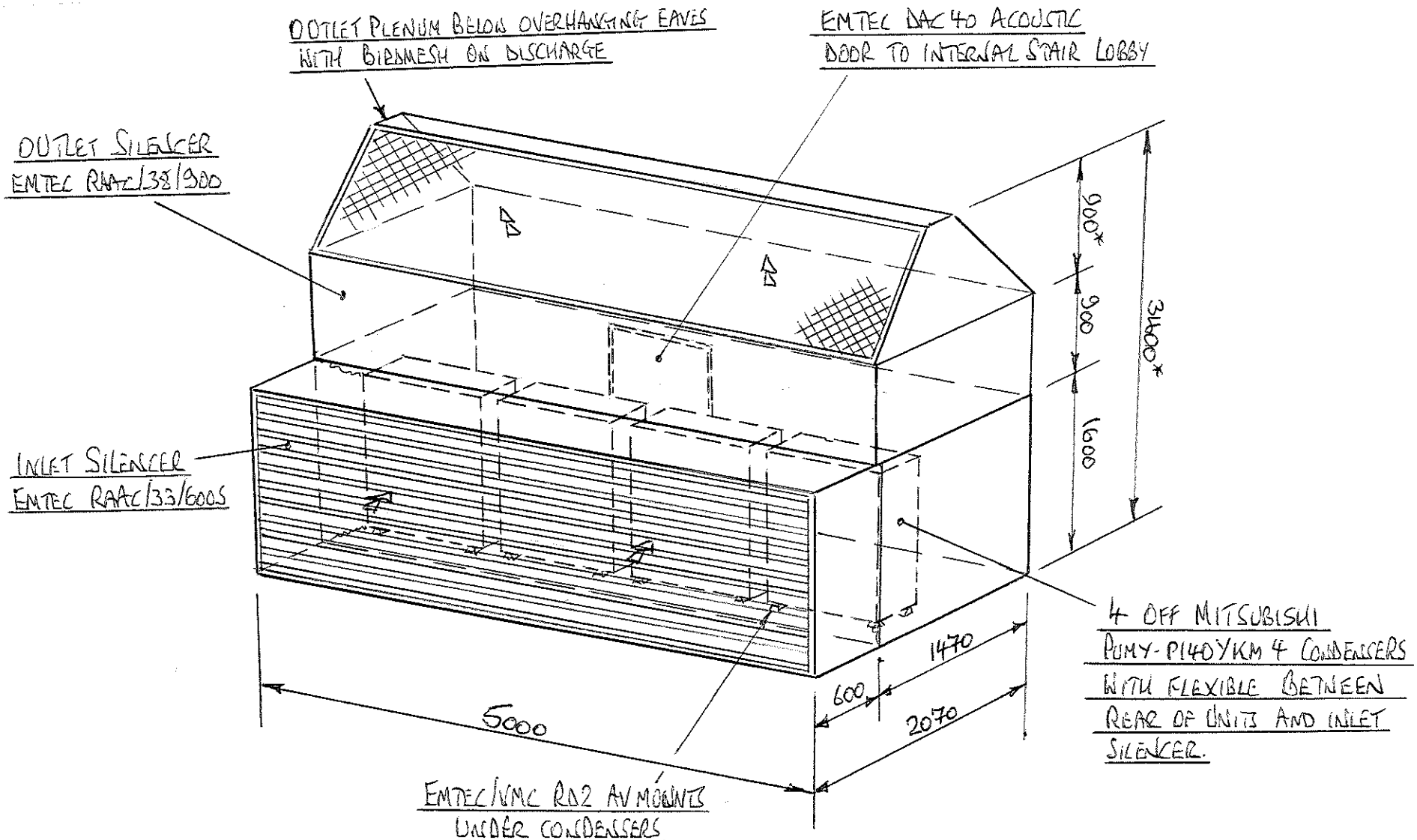



Photo B – Aerial photo of site with location of first floor roof area and adjacent residential properties


Photo C – Rear of residential properties on Doughty Street directly behind first floor roof area


Photo D – View to rear of houses in Guildford Street with microphone on first floor roof

| Revision | Issued | Date |
|---|---|---|
| 00 | FIST ISSUE | |




| | | | | | | |
|---|---|---|---|---|---|---|
| Project | 21-20A BROWNLOW MEWS, LONDON | | | | | |
| Client | COOLAIR EQUIPMENT LTD. | | | | | |
| Designed by | Checked by | Approved by – date | Filename | Date drawn | Scale | |
| MGR | MGR | | QF9847 | 30/7/2019 | NTS | |

Title: DETAILS OF CONDENSER ACOUSTIC ENCLOSURE

ALL DIMENSIONS IN mm UNLESS STATED

EMTEC
Unit L, Turn Pike Way, High Wycombe, Buckinghamshire. HP12 3TF
Telephone : 020 8848 3031 www.emtecproducts.co.uk

Drawing Number: QF/9847/GA3.

Revision: –

Works order No.: PF